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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,178	09/09/2003	Harry W. Sarkas	2000US01 C	3345
26689	7590	11/20/2006	EXAMINER	
WILDMAN HARROLD ALLEN & DIXON 225 WEST WACKER DRIVE, SUITE 2800 CHICAGO, IL 60606				MAYEKAR, KISHOR
ART UNIT		PAPER NUMBER		
1753				

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/658,178	SARKAS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kishor Mayekar	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 25 September 2006.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 2-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) \_\_\_\_\_ is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 09/06 & 10/06.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: an apparatus with an anodic column and a cathodic column as claimed in claim 2; and the introduction of the oxidizing gas into an anodic column of a transferred or free-burning electric arc as claimed in claims 4 and 5, respectively.

### *Claim Rejections - 35 USC § 112*

2. Claims 2-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, the phrase "generating a plasma with an apparatus" is confusing and vague as whether the plasma is generating within or outside the apparatus. And the subject matters "an anodic column" and "a cathodic column" are not structures of the apparatus since they are arc columns and are generated from the operating of the apparatus.

In claim 4, the recited "step of forming" lacks antecedent basis. Also, the phrase "an anodic column" is also confusing as whether the recited anodic column is the same as

that recited in claim 2 or another.

In claim 5, the recited "step of forming" lacks antecedent basis. Also, the phrase "an anodic column" is also confusing as whether the recited anodic column is the same as that recited in claim 2 or another.

In claim 6, the recited step of injecting is confusing or incomplete as into which the stream is injected.

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayce (US 3,989,512) in view of Pirzada et al. (US 5,788,738). Sayce's invention is directed to a method of effecting the chemical or physical modification of a particulate material by a plasma heat treatment means. Sayce discloses that the method comprises the recited steps of generating, introducing, injecting and recovering (see Figs 1 and 2; Examples 1 and 2; and paragraph crossing cols. 2 and 3). The difference between Sayce

and the above claims is that Sayce is silent to the preparation of nanosized material. Pirzada, a reference cited in the last Office action, shows in a method of preparing nanoscale particulate material by a plasma heat treatment means and by quenching of vapors (see abstract) where the means can be a DC arc (col. 6, lines 16-21). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Sayce's teachings as suggested by Pirzada because this would result in obtaining nanoscale particulate material by combining Sayce's apparatus with Pirzada's rapid thermal quenching of high temperature vapors.

As to the subject matter of claim 5, it is inherently in the vicinity of Sayce's region 4 close to the plasma jet 3 as shown in Fig. 1.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sayce '512 as modified by Pirzada '738 as applied to claims 2, 3, 5 and 6 above, and further in view of Applicant's admission. The difference between the references as applied above and the instant claims is the provision of introducing of the oxidizing gas into the anodic column of a transferred electric arc. However, Applicant admits in the section "Background of the Invention" that a transferred electric arc is known in addition to a free burning electric arc. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings as admitted by Applicant because the substitution of art recognized equivalents would be

within the level of ordinary skill in the art.

*Response to Arguments*

6. Applicant's arguments filed 25 September 2006 have been fully considered but they are not persuasive because of the new grounds of rejections as set forth in the paragraphs above.

*Conclusion*

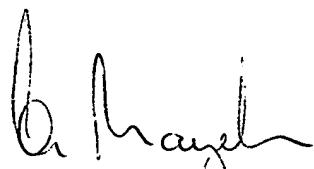
7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kishor Mayekar  
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Art Unit 1753